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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,545	12/13/2006	Nobuhiko Masaki	050203-0143	7405

31824 7590 03/20/2008

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EXAMINER	
NGUYEN, TU MINH	
ART UNIT	PAPER NUMBER
3748	
MAIL DATE	DELIVERY MODE
03/20/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/572,545	MASAKI ET AL.	
	Examiner	Art Unit	
	TU M. NGUYEN	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 December 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. An Applicant's Amendment filed on December 10, 2007 has been entered. Claims 3-4 have been canceled; claims 1 and 2 have been amended; and claim 5 has been added. Overall, claims 1, 2, and 5 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mahr (U.S. Patent 6,382,600) in view of design choice.

Re claim 1, as shown in Figure 1, Mahr discloses an exhaust gas purification apparatus of an engine comprising:

- a reduction catalyst (reduction catalytic converter) that is arranged in an exhaust system of the engine, for reducing and purifying nitrogen oxide in an exhaust gas using a reducing agent (urea solution); and

- a reducing agent supplier (4) provided with an injection nozzle having a tip end portion, which extends towards a downstream side in an exhaust gas passage (2) of the exhaust system, substantially parallel with an exhaust gas flow direction, for supplying the reducing agent to an exhaust gas on upstream side of the reduction catalyst;

wherein an exhaust gas downstream side end portion of the tip end portion of the injection nozzle has an exhaust gas downstream side end surface that is blocked (by a spray head (6)), and a ring shaped protruding ridge (spray head (6)) is provided on an outer peripheral surface of the exhaust gas downstream side end portion and is arranged to convexly protrude in an outward direction substantially at an angle to a central axis of the injection nozzle, wherein the ring shaped protruding ridge is formed in a shape that is tapered towards an outer peripheral surface of an outer end portion thereof with at least one injection hole (8) in the outer peripheral surface for ejecting the reducing agent in the outward direction from the central axis of the injection nozzle.

Mahr further discloses that the outward direction forms an angle approximately 50^{o} to the central axis of the injection nozzle (see claim 4); however, a value of the angle is dependent on the exhaust gas flow, an exhaust pipe diameter, a quantity of reducing agent, and the size and configuration of the injection hole (lines 27-31 of column 3).

Mahr, however, fails to disclose that the outward direction forms an angle that is substantially orthogonal to the central axis of the injection nozzle.

With regard to applicants claim directed to a specified angle of the outward direction of the injection hole relative to the central axis of the injection nozzle, the specification of such would have been an obvious matter of design choice well within the level of ordinary skill in the art depending on design variables, such as an exhaust gas flow rate, an exhaust pipe diameter, a quantity of reducing agent, and the size and configuration of the injection hole, etc. Moreover, there is nothing in the record which establishes that the specification of such presents a novel of unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

Re claim 2, in the apparatus of Mahr, the ring shaped protruding ridge (6) is formed with a plurality of the injection holes (8) that are drilled in a radial pattern in the outward direction from the central axis of the tip end portion of the injection nozzle.

Re claim 5, in the apparatus of Mahr, as shown in Figure 2, the ring shaped protruding ridge (6) is formed in a shape that is tapered on both sides of the outer end portion of the ring shaped protruding ridge thereby defining a narrow flat surface extending around a circumferential direction on the outer peripheral surface of the ring shaped protruding ridge, the narrow flat surface being formed with at least one injection hole (8) for ejecting the reducing agent.

Response to Arguments

4. Applicant's arguments with respect to the references applied in the previous Office Action have been fully considered but they are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Tu M. Nguyen/
Tu M. Nguyen
Primary Examiner
Art Unit 3748

TMN
March 16, 2008